

REMARKS

Specification

The abstract of the disclosure was objected to because it appears to be the first two pages of a PCT application WO 2004/040437. Accordingly, the abstract has been amended.

Claim Rejections - 35 U.S.C. § 112

Claim 17 has been amended to spell out the well known acronym NIHSS as National Institute of Health Stroke Scale. Accordingly, Applicants request the withdrawal of the rejection.

Claim Rejections - 35 U.S.C. § 103

Claims 2-5, 10-11, and 13-19 were rejected under 35 USC 103(a) as being unpatentable over US Patent No. 7,020,578 to Sorensen et al. (hereinafter "Sorensen").

With respect to claim 13, the claim is drawn to, among other things, a hazard atlas comprising a plurality of voxels, each voxel representing a hazard value of an extent of deficit caused by damage from the disorder to that voxel of tissue at that location; obtain from the memory or computer-readable medium the hazard atlas of the disorder in the tissue; and compute a hazard score for the patient, wherein the score is the integration of all damaged patient image voxels weighted by a hazard value corresponding to that voxel location.

A review of Sorensen, and specifically the cited portions, identify that the Office Action misinterprets the teachings of Sorensen. The "signature maps" or "risk maps" of Sorensen are not the same as a "hazard atlas" as taught in the instant application, nor would the hazard atlas be obvious in light of the teachings of Sorensen. The signature maps or risk maps of Sorensen describe a method of assigning a voxel-by-voxel risk of tissue death in the future (see col. 2, lines 13-16). The hazard atlas of the instant application, on the other hand, improves upon the risk map information mathematically with location specific information (i.e., forming the "atlas") about the impact that a given voxel's death would have on behavior. Thus, the hazard atlas requires something more than the risk map -- it requires an atlas of the brain, a location-by-location quantitative description of value to the patient. In addition, the risk map of Sorensen is per person, where the hazard atlas is per disorder.

As an example to help illustrate this distinction, consider a part of the brain that controls the hand, region A, versus a part of the brain that has no clear function, region B. (There are many parts of the brain that do not have a clearly discernable function.) If one cubic centimeter (cc) of brain dies in the hand region, region A, there is noticeable and measurable impact to the patient. If one cc

of brain dies in a portion of the brain that has no clear function, region B, no one would notice. The hazard value would have a high value for region A, but a low value for region B.

With this in mind, consider a patient who suffers an ischemic stroke threatening both regions A and B. The risk map might assign an equal risk of tissue dying to regions A and B, because both regions might be as likely to die in the near future, as revealed by imaging. However, the hazard atlas might multiply the risk of tissue dying by the hazard value's score. This would result in a high score for region A, and a low score for region B.

The Office Action identifies col. 5, lines 5-22 and line 44-67 as reading on a hazard atlas comprising a plurality of voxels, each voxel representing a hazard value of an extent of deficit caused by damage from the disorder to that voxel of tissue at that location. Nowhere in Sorensen does it describe a compilation of location specific voxel information representing a value of an extent of deficit cause by damage from a disorder to that voxel. Instead, Sorensen teaches obtaining image data from a patient within a predetermined amount of time from symptom onset in order to generate the risk map (see col. 3, lines 35-38).

The Office Action goes on to identify col. 7, lines 9-10 as reading on computing a hazard score for the patient, wherein the score is the integration of all damaged patient image voxels weighted by a hazard value corresponding to that voxel location. Again, the cited text in Sorensen fails to describe anything to do with the integration of damaged patient image voxels weighted by a hazard value (the value of an extent of deficit cause by damage from a disorder) corresponding to a specific voxel.

Accordingly, Applicants request the withdrawal of the rejection of claim 13 and the claims that depend therefrom.

Claim 13 has been amended merely to correct a typographical error and not for the purpose of patentability.

New claim 29 has been added and is similar to claim 13. No new matter has been added.

If the Examiner believes questions or matters of clarification remain, or if the Examiner has any comments or suggestions which could place this application in even better form to expedite allowance, such matters can be handled by an in person or telephonic interview to advance prosecution of this case and the Examiner is invited to contact the undersigned. The Applicants remain committed to proceed on this basis.

It is respectfully submitted that this amendment places this application into condition for allowance.

No fees are believed due for filing this response, however, please charge any fees that may be due, or credit any overpayment, to Deposit Account No. 17-0055.

Respectfully submitted,
GREGORY SORENSEN et al.

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/Thomas J. Krumenacher/
Thomas J. Krumenacher
Reg. No. 56,736
Attorney for Applicants
Quarles & Brady LLP
411 East Wisconsin Avenue
Milwaukee, Wisconsin 53202-4497
Tel. No. (414) 277-5199
Fax No. (414) 978-8964